

What is claimed is:

1. A surface-emitting semiconductor laser element for emitting laser light from a surface, comprising:

5 a GaAs substrate;

semiconductor layers which are formed above said GaAs substrate in parallel to said surface, and include,

10 a lower mirror which is realized by a semiconductor multilayer film, is formed above said GaAs substrate, and constitutes an optical resonator,

an active layer formed above said lower mirror,

15 a current-confinement layer of one of a selective-oxidation type and an ion-injection type formed above said active layer, and

20 an upper mirror which is realized by a semiconductor multilayer film, is formed above said current-confinement layer, and constitutes said optical resonator; and

a pair of electrodes which inject current into said active layer;

wherein said active layer includes,

25 a quantum well made of InGaAsP having a first forbidden band width, and

sublayers arranged adjacent to said quantum well and made of one of InGaP and InGaAsP which has a second forbidden band width greater than said first forbidden band width; and

5           said lower mirror and said upper mirror are made of AlGaAs.

2. A surface-emitting semiconductor laser element according to claim 1, wherein each of said quantum well and said sublayers has such a composition so as to lattice-match with GaAs.

10           3. A surface-emitting semiconductor laser element according to claim 1, wherein said quantum well has such a composition so as to cause compressive strain with respect to GaAs, and each of  
15           said sublayers has such a composition so as to lattice-match with GaAs.

4. A surface-emitting semiconductor laser element according to claim 1, wherein said quantum well has such a composition so as to cause  
20           compressive strain with respect to GaAs, and each of said sublayers has such a composition so as to cause tensile strain with respect to GaAs.

5. A surface-emitting semiconductor laser element according to claim 1, wherein said quantum  
25           well has such a composition so as to cause tensile strain with respect to GaAs, and each of said

sublayers has such a composition so as to lattice-match with GaAs.

5 6. A surface-emitting semiconductor laser element according to claim 1, wherein said quantum well has such a composition so as to cause tensile strain with respect to GaAs, and each of said sublayers has such a composition so as to cause compressive strain with respect to GaAs.

10 7. A surface-emitting semiconductor laser element according to claim 1, wherein said sublayers are barrier layers.

8. A surface-emitting semiconductor laser element according to claim 1, wherein said sublayers are spacer layers.

15 9. A surface-emitting semiconductor laser element according to claim 1, wherein said laser light has a wavelength in a range from 730 to 820 nm.

20 10. A surface-emitting semiconductor laser element according to claim 9, wherein said laser light has a wavelength in a range from 770 to 800 nm.

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